

Notice of Allowability

Application No.

10/624,517

Examiner

Nhan T. Tran

Applicant(s)

CHIANG ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed 7/23/2003.
2. ☒ The allowed claim(s) is/are 1-10.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows (*note: amendments are to correct claim informalities as shown in underline, strikethrough and spacing*):

Regarding claim 1:

In line 13 of page 12, the words "**the parallel data**" have been amended as -- **the parallel data** --.

In line 16 of page 12, the words "**the value of induced photocurrent**" have been amended as -- **the a value of induced photocurrent** --.

In line 16 of page 12, the word "**eliminate**" has been amended as -- **eliminates** --.

Regarding claim 10:

In line 15 of page 13, the word "**comprising**" has been amended as -- **comprising:** --.

In line 23 of page 13, the words "**Mn1 and Mn2(H cell)**" have been amended as -- **Mn1 and Mn2 (Hcell)** --.

In line 25 of page 13, the word “Vsmooth(VF)” has been amended as --
Vsmooth (VF) --. In line 2 of page 14, the words “**the B cell**” have been
amended as -- ~~the~~ **B cell** --.

In line 6 of page 14, the words “**the Row and Column**” have been
amended as -- ~~the~~ **Row and Column** --.

Allowable Subject Matter

2. Claims 1-10 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent claim 1, the prior art of record fails to teach or fairly suggest “**A Pseudo-BJT based retinal focal-plane sensing system, which mimics the three cell functions of P cell, H cell and B cell in a single pixel, and performs image sensing effect, comprising:...** a circuit for current hysteresis, used for eliminating noise disturbance and adjusted adaptively according to a value of induced photocurrent, which enhances noise immunity and eliminates noise disturbance; and a resistance circuit, having the function of Low-Pass Filter enabling high frequency noise to be eliminated with high tunable capability.”

Regarding independent claim 10, the prior art of record also fails to teach or fairly suggest “**A Pseudo-BJT retinal focal-plane circuit, comprising: a Photodiode D0, two Pseudo-BJTs, four adjustable N-channel MOS resistors of the smoothing network as Ms1 - Ms4, a set of adaptive current Schmitt trigger comprising Mnf1-Mnf2 and Mpf1-Mpf2, an Inverter comprising transistors Mn and Mp, row and**

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column controlled switch transistors, Pseudo-BJT P cells comprising Mp1 and Mp2, and Pseudo-BJT H cells comprising Mn1 and Mn2; wherein the Photodiode D0 is detected and photocurrent is then generated, incorporating Mp1 and Mp2 for the P cell to process;... Filter function enabling partial high frequent noise to be eliminated; Mp2 and Mn2 have the connection between thereof activating B cell functions; the adaptive current Schmitt trigger is composed of Mnf1-Mnf2 and Mpf1-Mpf2 for eliminating noise disturbance; an outputted Inverter converts analogue signals into digital signals; and the Row and Column controlled switch transistors are controlled by Row and Column Decoders, thereby only appointed pixels are able to output signals (Retina_out)."

Regarding claims 2-9, these claims are allowed as being dependent from claim 1.

3. The followings are closest references found:

Chang et al. (US 6,323,719 B1) discloses a pseudo bipolar junction transistor according to the invention includes two MOS transistors operating in saturation region, electrically connected in parallel with their drains and sources functioning as a collector and a emitter of the pseudo bipolar junction transistor, respectively, a first gate without any signal inputted and a second gate functioning as a base of the pseudo bipolar junction transistor, wherein the two gates is supplied with the same DC bias. The pseudo bipolar junction transistor is manufactured by CMOS process

for applications in variable gain amplifiers, transfer linear function signal processors and logarithmic filters.

Brehmer et al. (US 6,130,423) discloses A CMOS image sensor circuit having a row decoder, a column decoder and a distributed amplifier is disclosed. The CMOS image sensor circuit is constructed using a photo sensor that converts light intensity to into voltage, a reset transistor to charge the photo sensor, and a distributed amplifier to detect and read out the voltage value created by the photo sensor. The distributed amplifier is distributed in the sense that portions of the amplifier circuitry reside within individual pixel circuits that form a CMOS image sensor array. The remainder of the amplifier resides in a column read out circuit that is at the bottom of the CMOS image sensor array.

Wile (US 6,798,250) discloses a current sense amplifier circuit detecting a first current includes an input gain stage incorporating a feedback loop, a current mirror, a charge integration stage and a comparator (Schmitt trigger circuit). The first current is coupled to an input node of the input gain stage where the input gain stage operates to maintain the voltage at the input node at a substantially constant level. The current mirror is coupled to mirror the first current into a second current. The charge integration stage is coupled to integrate charge associated with the second current to develop a first voltage. The comparator is coupled to compare the first voltage to a reference level and providing an output signal. The comparator generates an output signal having a first value when the first current exceeds a predetermined threshold

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level and a second value when the first current is less than the predetermined threshold level.

Imaide et al. (US 4,556,911) discloses a Schmitt trigger amplifier 92 (Fig. 12; col. 10, lines 36-41) which is set in order to give hysteresis on excess charge sweep out.

However, none of cited references teach or fairly suggest the combination of all limitations required by each of claims 1 and 10.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (571) 272-7371. The examiner can normally be reached on Monday - Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NHAN T. TRAN
Patent Examiner



DAVID OMETZ
SUPERVISORY PATENT EXAMINER